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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,122	07/14/2003	Herman Lee	112056-0085	6869
24267 7590 12/21/2007 CESARI AND MCKENNA, LLP 88 BLACK FALCON AVENUE BOSTON, MA 02210			EXAMINER JEAN GILLES, JUDE	
			ART UNIT 2143	PAPER NUMBER
			MAIL DATE 12/21/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/619,122

Applicant(s)

LEE ET AL.

Examiner

Jude J. Jean-Gilles

Art Unit

2143

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 29-51 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 29-52 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

This office action is responsive to RCE communication filed on 05/14/2002. Claimed priority is granted original application filed on 07/14/2003.

### ***Response to RCE***

1. Claims 1-28 are cancelled. Claims 29-51 are newly added in application. Claims 29-51 are pending represent a "SYSTEM AND METHOD FOR OPTIMIZED LUN MASKING".

### **Information Disclosure Statement**

2. The references listed on the Information Disclosure Statement submitted on 09/22/2003, 09/29/2003, 09/29/2003, and 07/12/2004 have been considered by the examiner (see attached PTO-1449A).

### **Claim Rejections - 35 USC § 112**

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 51 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 51, recites the phrase " *A computer readable medium*" in line 1. The phrase should be either " A computer readable medium" or "computer readable media".

Claim 51 discloses a data storage system having a number of steps. It is not clear in the context of the invention how those steps are comprised within a data storage system. Instead the Examiner in order expedite prosecution of the application assumes those steps are comprised within the computer readable media.

Appropriate correction is required. The above noticed problems are just exemplary. Applicant is required to totally check the application for error and correct the same.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. **Claims 29-51** are rejected under 35 U.S.C. 102(e) as being anticipated by Kumar et al (Kumar), U.S. Pub. No. 2003/0131182 A1.

Regarding **claim 29-51**, Kumar discloses:

29. (New) A method for accessing a data storage system (*fig. 2*), comprising:

maintaining a virtual logical unit assigned to a specific client (last 3 lines of par. 0048; par. 0052, and 0079; *note that the hosts or clients are specific are defined as initiators of the network and that a host initiator is assigned to one or more virtual LUNs*);

receiving a log in request from the specific client , the log in request directed to the virtual logical unit (*par. 0098; see that the virtual enclosure represents the virtual LUN*);

initiating, in response to the log in request, a logical unit number map (lun map) from the virtual logical unit to one or more physical logical units (*par. 0098*), the specific client having permission to access the physical logical units indicated by the lun map, the map presenting one or more client specific lun numbers mapped to one or more physical lun numbers utilized by the storage operating system (*par. 0054, and par. 0057-0058*);

exporting the client specific lun numbers to the client (*see fig. 12; par. 0096; in par. 0048 note that in the SCSI standard, LUN refers to a logical unit number and that the SCSI based terminology is used in this invention*); and

receiving a data access request from the client, the request directed to a selected client specific lun, and translating the client specific lun by the map into a selected physical lun number, the physical lun number accessing a physical logical unit supporting the client specific lun (*par. 0096-0097*).

30. (New) The method of claim 29, further comprising:

generating the lun map to have a set of ordered pairs mapping one or more virtual luns to one or more physical luns (*see LUN.map of fig. 12; par. 0096; note the pair LUN# and VLUN whereas, LUN# is the physical LUN and that the virtual LUN is the VLUN i.e. (1208, 1204)*).

31. (New) The method of claim 29, further comprising:

exporting a virtual lun number to the client; and  
associating a physical lun number with the storage system (*see fig. 12, and 13; par. 0096-0097; note the provision of additional level of storage virtualization at the end of par. 0097*).

32. (New) The method of claim 29, further comprising:

identifying a set of luns that the client may access in response to the client logging

in by,

(a) selecting a lun data structure (*par. 0098; a map table is a type of data structure*);

(b) searching through a list of client identifiers in the lun data structure to identify whether the client may access the selected lun (*par. 0096*);  
repeating steps (a) and (b) for each lun data object associated with a given storage system (*par. 0096, and 0098*); and

accessing, in response to a client data access request, a lun data object by use of the lun map and without searching the lun data structure (*par. 0097; see also fig. 13*).

33. (New) The method of claim 29, further comprising:

accessing a set of lun data structures associated with the storage system in identifying the one or more physical logical units which the client has permission to access (*see fig. 12, and 13; par. 0096-0097*).

34. (New) The method of claim 29, further comprising:

using as a world wide name as a client identifier (*par. 0067*).

35. (New) The method of claim 29, further comprising:

using a Fibre Channel switching network for the client to access the data storage system (*par. 0067-0068*).

36. (New) The method of claim 29, further comprising:

using an Ethernet switching network for the client to access the data storage system (*par. 0036 and 0055*).

37. (New) The method of claim 29, further comprising:

using a multi-protocol storage appliance as the data storage system (*par. 0055*).

38. (New) The method of claim 29, further comprising:

exporting a set of virtual luns to the client as a set of accessible luns client (*see fig. 12; par. 0096*).

39. (New) The method of claim 29, further comprising:

containing the lun map within an initiator data structure accessible to the virtual logical unit (*par. 0098*).

40. (New) A data storage system, comprising:



a virtual logical unit assigned to a specific client (last 3 lines of par. 0048; par. 0052, and 0079; *note that the hosts or clients are specific are defined as initiators of the network and that a host initiator is assigned to one or more virtual LUNs*);

a log in request received from the specific client, the log in request directed to the virtual logical unit (*par. 0098; see that the virtual enclosure represents the virtual LUN*);

a logical unit number map (lun map) initiated, in response to the log in request, the map mapping from the virtual logical unit to one or more physical logical units (*par. 0098*), the specific client having permission to access the physical logical units indicated by the lun map, the map presenting one or more client specific lun numbers mapped to one or more physical lun numbers utilized by the storage operating system (*par. 0054, and par. 0057-0058*);

the client specific lun numbers exported to the client (*see fig. 12; par. 0096; in par. 0048 note that in the SCSI standard, LUN refers to a logical unit number and that the SCSI based terminology is used in this invention*); and

a data access request received from the client, the request directed to a selected client specific lun, and translating the client specific lun by the map into a selected physical lun number, the physical lun number accessing a physical logical unit supporting the client specific lun (*par. 0096-0097*).

41. (New) The data storage system of claim 40, further comprising:

the lun map having a set of ordered pairs mapping one or more virtual luns to one or more physical luns (see *LUN map of fig. 12; par. 0096; note the pair LUN# and VLUN whereas, LUN# is the physical LUN and that the virtual LUN is the VLUN i.e. (1208, 1204).*

42. (New) The data storage system of claim 40, further comprising:  
exported a virtual lun number to the client; and  
a physical lun number associated with the storage system (see *fig. 12, and 13; par. 0096-0097; note the provision of additional level of storage virtualization at the end of par. 0097).*

43. (New) The data storage system of claim 40, further comprising:  
a set of luns that the client may access identified in response to the client logging  
in by,

(a) selecting a lun data structure (*par. 0098; a map table is a type of data structure*);

(b) searching through a list of client identifiers in the lun data structure to identify whether the client may access the selected lun (*par. 0096*);

repeating steps (a) and (b) for each lun data object associated with a given storage system (*par. 0096, and 0098*); and

a client data access request to access a lun data object by use of the lun map and without searching the lun data structure (*par. 0097; see also fig. 13*).

44. (New) The data storage system of claim 40, further comprising:

a set of lun data structures associated with the storage system accessed in identifying the one or more physical logical units which the client has permission to access (*see fig. 12, and 13; par. 0096-0097*).

45. (New) The data storage system of claim 40, further comprising:

a world wide name used as a client identifier (*par. 0067*).

46. (New) The data storage system of claim 40, further comprising:

a Fibre Channel switching network used for the client to access the data storage system (*par. 0067-0068*).

47. (New) The data storage system of claim 40, further comprising:

an Ethernet switching network used for the client to access the data storage system (*par. 0036 and 0055*).

48. (New) The data storage system of claim 40, further comprising:

a multi-protocol storage appliance used as the data storage system (*par. 0055*).

49. (New) The data storage system of claim 40, further comprising:

a set of virtual luns exported to the client as a set of accessible luns (*see fig. 12; par. 0096*).

50. (New) The data storage system of claim 40, further comprising:

the lun map contained within an initiator data structure accessible to the virtual logical unit (*par. 0098*).

51. (New) A computer readable media, comprising:

said computer readable media containing instructions for execution on a processor for accessing a data storage system, the data storage system having the

steps of, maintaining a virtual logical unit assigned to a specific client (fig. last 3 lines of par. 0048; par. 0052, and 0079; *note that the hosts or clients are specific are defined as initiators of the network and that a host initiator is assigned to one or more virtual LUNs*);

receiving a log in request from the specific client, the log in request directed to the virtual logical unit (*par. 0098; see that the virtual enclosure represents the virtual LUN*);

initiating, in response to the log in request, a logical unit number map (lun map) from the virtual logical unit to one or more physical logical units (*par. 0098*), the specific client having permission to access the physical logical units indicated by the lun map, the map presenting one or more client specific lun numbers mapped to one or more physical lun numbers utilized by the storage operating system (*par. 0054, and par. 0057-0058*);

exporting the client specific lun numbers to the client (*see fig. 12; par. 0096; in par. 0048 note that in the SCSI standard, LUN refers to a logical unit number and that the SCSI based terminology is used in this invention*); and

receiving a data access request from the client, the request directed to a selected client specific lun, and translating the client specific lun by the map into a selected physical lun number, the physical lun number accessing a physical logical unit supporting the client specific lun (*par. 0096-0097*).

***Conclusion***

7. Any inquiry concerning this communication or earlier communications from examiner should be directed to Jude Jean-Gilles whose telephone number is (571) 272-3914.

The examiner can normally be reached on Monday-Thursday and every other Friday from 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn, can be reached on (571) 272-1915. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-3201.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-0800.

Jude Jean-Gilles

Patent Examiner

Art Unit 2143

JJG

December 17, 2007

A handwritten signature in black ink, appearing to read 'Jude Jean-Gilles', is written over the printed name and title.